

has no more to do with education than the two hind buttons on our coats or the wigs of our judges have to do with convenience. These three kinds of school training—in one's own language and literature, in the principles of natural science, in common-sense computation—are absent from all public schools at the present time; it seems mere impudence in me to make them the only compulsory forms of training for men who are to enter a university. Until this is done, I think that most of the endowment of science scholarships is quite wasted.

I agreed to give this address because I knew that Sir Norman Lockyer intended in his British Association address to propose a very large Government endowment of the universities. At first sight his suggestion that 24 millions of pounds should be devoted to this purpose seemed ridiculous, but careful study has brought many thoughtful business men round to the idea; it is not utopian, it has actually a good chance of being carried out.

I saw, as many of my friends see, that the one thing which may wreck the project is the reputation of Oxford. Our rulers who have to grant the money know of universities only through their knowledge of Oxford. It is hardly possible for them to understand what we mean by a true university, which would give to every student real breadth of culture, real mental training. They may be brought to see it if Oxford men are in earnest in trying to develop Oxford on scientific as opposed to unscientific and ill-regulated lines; if the powers of light organise themselves as scientifically as the powers of darkness are organised. But there are certain intellectual movements going on in our nation which may force our rulers to grant the money; Oxford seems to know little about them and to care less; they seem to her to be merely a new untying of the bags of Aeolus; it is my belief that if Oxford knew more about them she would build an altar to the goddess of *Fear* and offer sacrifices upon it, yea, burnt offerings of some of her best-loved possessions.

Oxford has a well earned prestige and still attracts all young men of intellect, but these new intellectual forces may quite quickly destroy the reputation which has been built up during centuries. For example, we have a new kind of secondary school, of which some five hundred have been established all over the country in the last few years. I myself think the science schools, scheduled as A schools, to be much the best of them, but the most numerous of them are the B schools, in which there is some natural science taught through boys' own research, but the time devoted to it is not much more than what is sufficient to enable us to say that in these schools boys are greatly emancipated from the old Oxford limitations. These schools before their emancipation sent many a fine scholar and mathematician to Oxford and Cambridge. They still rank below the great public schools. What is aimed at is an education which may suit any kind of boy, a real liberal education such as the older schools know nothing of. It is even hoped that shortly somebody in one of these schools will discover how English may be taught to English boys. All these, like the science schools, are due to the work of Sir William Abney. Now the boys of these schools, when they leave, wish to complete their education on the lines on which they have been working so far; are these exceptionally able students to be told that Oxford cannot complete that education? Few people seem to be aware that the growth of these schools indicates a great revolution; anybody who notes their rapid growth must feel sure that in a few years no secondary schools, except a few of the public schools, will continue to work under Oxford traditions. It ought to be noticed that unless boys in future are prepared on these new lines, it is not worth their while to enter Woolwich or Sandhurst, or the Admiralty colleges, because they will not be able to follow the higher instruction there given, and must drop out of the race for commissions. It is evident that the days of special army and other classes in schools are numbered. If Oxford by holding aloof from this movement ceases to influence the majority of the secondary schools, it will lose its influence over a great body of people of the middle class.

I have already mentioned another great movement from which Oxford is holding aloof, the movement for technical education the basis of which is the sort of study trifled

with, feared, and hated at Oxford, natural science. It has spread from the very lower classes to the lower middle classes, and better and better buildings and apparatus, and better paid teachers indicate the higher and higher social position of the pupils of the technical schools. A few Oxford men have greatly helped in starting both of these great movements, and Oxford as a whole, if she cared, might be in a position to take a leading part in them. She has an influence now due to the easily interpreted fact that Oxford men occupy many of the higher posts connected with both of them.

It is not only that Oxford keeps aloof from technical education, but she keeps aloof from the very much greater thing of which this movement is only a symptom, namely, the phenomenon that trade and manufacture are no longer left to themselves as they used to be; they are being organised on scientific lines in all countries. She has always ostentatiously held herself aloof from manufactures and commerce. It is almost incomprehensible that a university aiming at breadth of culture should scorn those things which keep England in her high position, give value to the real estate on which Oxford's own revenues depend, and differentiate Oxford from Beyrouth. I feel sure that this attitude ought to be quite carefully veiled if Oxford is to have such a share in the 24 millions as her prestige would otherwise warrant her demanding.

The truest stories about man are the fairy stories; they are true of all times, of all races of men, and the truest fairy story is that which tells how men who look back and not forward are turned into lumps of rock or pillars of salt.

I want the forces of light at Oxford to organise themselves to teach Oxford how she may become worthy to maintain the reputation which she earned so well in the past. Her great glory is not in her defence of lost causes as many men think. Was the movement started by Roger Bacon a bad cause? Is it a lost cause? Has the movement started by Grocyn and Colet become a lost cause? Has the movement started by those Oxford men who founded the Royal Society become a lost cause? Are the names of Wycliffe and Wesley forgotten? Have the reforms started by Stanley, Jowett and Pattison in our own times become lost causes? Not yet! The influence of Oxford over intellectual England used to be supreme, it is still enormous; it rests with the young Oxford men of the present day who know something of history to decide whether this influence may or may not become a cause lost beyond all chance of finding again.

A NEW GERMAN BOTANICAL SOCIETY¹

THE publication of the first report of the meeting in Berlin of the Society of Germans interested in the Study of Systematic Botany and Plant Geography calls for more than passing notice. The society owes its creation to a well-founded cause, and is indicative of a response to that spirit of colonisation which has shown itself in Germany more and more during the past thirty years. In the first half of the nineteenth century the British Government, merchants and others were calling out for information as to the character of the flora of our colonies, and, as a result, British botanists were mainly engaged in the study of systematic botany, while the German botanists were occupied in the investigation of the structure, physiology and pathology of the individual plant, with results in each case well known to all serious students of botany.

The German systematists do not take a prominent place at the meetings of the German Association for the Advancement of Science, and though in their new society they propose cooperation, if possible, with it and with the Deutsche Botanische Gesellschaft, they seem to feel the necessity of a separate society to meet the requirements of their own branch of botanical study, which, during the last twenty years, has made enormous strides. Explorers have been sent out into all parts of the globe, and not simply to the German colonies. Listening to the papers from day to day it seemed that, so far as the conference was concerned, the

¹ Bericht ü. d. Erste Zusammenkunft der freien Vereinigung der systematischen Botaniker u. Pflanzengeographen zu Berlin. Pp. 83. (Leipzig: W. Engelmann, 1903.)

German flora might have been almost non-existent, so wide is the field covered nowadays by German investigators. Nor is this outlook due simply to the desire to know more of the economic value of their colonial floras. The more complete our knowledge the surer will the foundation be laid for that natural system of classification which so far has been most nearly reached in Engler's "Pflanzenfamilien." These two objects, increase of knowledge of the economic value of particular floras, and the reduction of the imperfection of record of the world's flora, in time and space, were kept prominently before the conference. It was refreshing to an Englishman to hear the various readers of papers acknowledge the work of the Hookers, Bentham, and others. A third object in starting the society was well carried out—to bring together the systematists in Germany, &c., for semi-scientific and semi-social intercourse.

Each evening members, accompanied in some cases by ladies, met in a restaurant for dinner, the most enjoyable of these functions being the one in Potsdam, ending a long day's excursion in the forest on the banks of the Wann See. After an explanation of the plans for the new herbarium, &c., to replace the overcrowded botanical museum and the old gardens in the city, a visit was paid to the new gardens in the suburb of Dahlem. Here, as in the old museum, it was interesting to notice not only the grasp the director, Dr. Engler, had of everything, but also the way in which he brought forward the officers of the various departments, and left them to tell their story. Appreciation of the importance of the protection and preservation of special plant habitats or of special individual plants, and also of beautiful scenery, was illustrated by a paper by Dr. Conwentz, who for three years past has devoted his time, at the Government's request, to the study of the question, and is now engaged in the preparation of an illustrated elaborate report. The next meeting of the Society will be held in Stuttgart on August 4-7, 1904, and should be borne in mind by British botanists; the subscription for membership is only three shillings.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

MR. R. H. YAPP, of Cambridge, has been appointed professor of botany in the University College of Aberystwyth in succession to Prof. J. H. Salter.

MR. HUGH DAVIES has been appointed head of the building trades department of the Northern Polytechnic Institute in succession to Mr. H. W. Richards, who was recently made principal of the London County Council School of Building at Brixton.

THE debt of 5000*l.* in connection with the University College, Bristol, has now been entirely liquidated. Sir William H. Wills, Bart., and Sir Frederick Wills, Bart., M.P., each contributed 1000*l.* towards the amount required, and a further sum of 500*l.* has been given by the managers of the Exhibition of Welsh Industries recently held in Bristol.

THE governing body of the South-western Polytechnic, Chelsea, has accepted with very great regret the resignation of the principal, Mr. Herbert Tomlinson, F.R.S. At a meeting held on December 16, the following resolution was passed:—"That the governing body hereby desire to record their cordial appreciation of the admirable work that Mr. Tomlinson as the first principal has accomplished in organising and developing the institute in all its branches."

At the Royal United Service Institution Mr. C. E. Stromeyer read a paper on short service training for reserve officers. It contained a sketch of the German "Einjähriger Freiwilliger" system, which, according to the author's views, supplements the ordinary school and university studies by a good insight into the human nature of the German workman by bringing him and the one year volunteer into close contact while serving together in the ranks. German technical students are therefore fit at an early age for the

posts of submanagers in industrial undertakings, whereas English lads fresh from technical colleges are not trusted to deal with workmen. The author suggests that the War Office should encourage young men from public schools and from universities to join the army for a short period.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, December 21.—M. Albert Gaudry in the chair.—After the delivery of the annual presidential address, the prizes offered for the year 1903 were awarded. In geometry, the Francœur prize to M. Émile Lemoine for the whole of his work in geometry; the Poncelet prize to Prof. M. Hilbert, University of Göttingen, for his works on the principles of geometry. In mechanics, the extraordinary prize of 6000 francs was divided as follows:—one-half to M. Maugas, chief engineer in the navy, for his researches on the stability of battleships and his works on submarine navigation; the other half was divided in equal parts between Lieutenants Jehenne, Gaillard, and Germain, the first for his work in the application of wireless telegraphy to the navy, the other two for the improvements they have carried out in apparatus intended for the transmission of orders or signals during a battle. The Montyon prize was awarded to Prof. Bodin for designing and executing a new system of cantilever at the Vizier viaduct; the Plumey prize to Prof. Marchis for the free courses of instruction in applied mechanics organised by him, and more especially for his lessons on steam and heat engines. The Fourneyron prize was not awarded. In astronomy, the Pierre Guzman prize was not awarded; the Lalande prize was awarded to Prof. Campbell, of the Lick Observatory, for his investigations in stellar spectroscopy and astronomical physics; the Valz prize to M. Borrelly for his discoveries of comets; and the G. de Pontécoulant prize, intended to encourage researches in celestial mechanics, to M. H. Andoyer for his memoirs on the theory of the moon and that of the small planets. In physics, the Hébert prize was awarded to Dr. E. Goldstein, of the Berlin Observatory, for his investigations, during thirty years, of electric discharges through rarefied gases and the discovery of a particular kind of radiation; the Hughes prize fell to M. Pierre Picard for the improvements effected in telegraphy, improvements which have increased the rapidity of transmission in submarine cables; the Gaston Planté prize to M. Hospitalier for his ondograph. In statistics, the Montyon prize was not awarded, though MM. Loncq, de Montessus de Ballore, and Razous each received an honourable mention. In chemistry, the Jecker prize was given to M. L. Bouveault for his numerous researches in organic chemistry during the last seventeen years. The La Caze prize fell to M. A. Guntz for his thermochemical investigations on the compounds of fluorine with metalloids and with metals. In mineralogy and geology the Delesse prize is awarded to M. Emmanuel de Margerie, joint author with General de la Noë of "Les Formes du Terrain," and translator into French of "La Face de la Terre," by Prof. Suess, of Vienna. In physical geography, M. R. P. Colin received the Gay prize for the determination of numerous geographical positions in Madagascar. In botany, the grand prize of the physical sciences was not awarded, nor were the Bordin and Desmazières prizes. M. Maire was accorded the Montagne prize for his delicate researches in connection with the Basidiomycetes. The Thore prize was awarded to M. de Istwanff for his work upon the diseases of the vine known as "white" or "red" rot. In rural economy the Bigot de Morogues prize fell to M. Eugène Rister for his well-known "Géologie agricole." In anatomy and zoology, M. R. Fourtau is accorded the Savigny prize for his memoirs on Egyptian stratigraphy and other palaeontological subjects, and M. Krempf receives an honourable mention. The Countess Maria von Linden gained the Da Gama Machado prize for two memoirs on the development of the colours in the wings of butterflies. In medicine and surgery, Montyon prizes are awarded to M. Dominici for his memoirs on the normal condition of certain organs, and also when infected; to